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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,754	11/26/2003	Ralph I. Larson	HTI-019BUS	7292
22494	7590	02/25/2005		
DALY, CROWLEY & MOFFORD, LLP SUITE 101 275 TURNPIKE STREET CANTON, MA 02021-2310			EXAMINER MCKINNON, TERRELL L	
			ART UNIT 3743	PAPER NUMBER

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/722,754	LARSON, RALPH I.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Terrell L Mckinnon	3743	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 28-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 52 and 53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                        |                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/1 &amp; 3/31/04</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 52 recites the limitation "said thermoelectric material" in the 1<sup>st</sup> sentence.

There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 28, 31-35, 42-47, 49 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Grandmont et al. (U.S. 2,413,179).

Grandmont discloses a heat sink and method comprising all of the applicant's claimed and disclosed limitations of the instant invention.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 29, 30 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grandmont et al. (U.S. 2,413,179) in view of Plegat (U.S. 3,422,777).

Grandmont's invention discloses all of the claimed limitations from above except for aligning comprises locating an index hole in the material and using the index hole as a reference point; aligning further comprises aligning the material between a stripper plate and an upper die; and the material which was where the aperture is provided extends from the sidewall.

7. However, Plegat teaches a fin with the material, which was where the aperture is provided, extends from the sidewall (Fig. 6).

Given the teachings of Plegat, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the heat sink fin and method of Grandmont with aligning comprises locating an index hole in the material and using the index hole as a reference point; aligning further comprises aligning the material between a stripper plate and an upper die; and the material which was where the aperture is provided extends from the sidewall.

Doing so would provide a means of efficiently transferring the fin material through the fin manufacturing machine, and providing an alternate fin design for improved heat dissipation.

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8. Claims 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grandmont et al. (U.S. 2,413,179) in view of Plegat (U.S. 3,422,777) as applied to claims above, and further in view of Lee (U.S. 6,176,304).

Grandmont's invention, as modified by Plegat, discloses all of the claimed limitations from above except for the heat sink assembly comprising a thermal interface material disposed on at least one surface of the slug; wherein the thermal interface material is selected from the group consisting of a thermoelectric material and a thermoionic material.

9. However, Lee teaches the heat sink assembly comprising a thermal interface material disposed between fins and a base (abstract)

Given the teachings of Lee, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the heat sink fin and method of Grandmont of with a heat sink assembly comprising a thermal interface material disposed on at least one surface of the slug; wherein the thermal interface material is selected from the group consisting of a thermoelectric material and a thermoionic material.

Doing so would provide enhance conduction and dissipation of heat.

10. Claims 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grandmont et al. (U.S. 2,413,179) in view of Plegat (U.S. 3,422,777) as applied to claims above, and further in view of McCullough (U.S. 6,367,541).

Grandmont's invention, as modified by Plegat, discloses all of the claimed limitations from above except for the folded fin member including a portion disposed in a

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generally non-vertical position; and the folded fin member including at least one section disposed at a different height than another section.

11. However, McCullough teaches a heat sink assembly comprising a folded fin member including a portion disposed in a generally non-vertical position; and the folded fin member includes at least one section disposed at a different height than another section.

Given the teachings of McCullough, it would have been obvious to one of ordinary skill in the art at the time of the invention to furthermore modify the heat sink fin and method of Grandmont of a folded fin member including a portion disposed in a generally non-vertical position; and a folded fin member including at least one section disposed at a different height than another section.

Doing so would provide thermal cooling for a variety of different electrical designs.

### ***Allowable Subject Matter***

12. Claim 53 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references cited on the USPTO 892 discloses related limitations of the applicant's claimed and disclosed invention.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell L Mckinnon whose telephone number is 571-272-4797. The examiner can normally be reached on Monday -Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Terrell L Mckinnon  
Primary Examiner  
Art Unit 3743  
February 22, 2005